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# TRANSLANGUAGING-TO-LEARN DURING COLLABORATIVE DIALOGUE IN TASK-BASED INTERACTION: THE POTENTIAL OF UTILIZING ARABIC AS A HERITAGE LANGUAGE FOR ADDITIONAL LANGUAGE LEARNING

**Abstract:**
This study investigated two young foreign language (FL) learners' translanguaging-to-learn in task-based peer interaction over the course of three years. Specifically, learners' use of their heritage language (HL) Arabic and second language German and the purposes for which each language was used in classroom-based peer interaction were investigated, namely those of collective scaffolding, LREs and private speech. In this way the study investigated how the learners use their HL, besides the L2 German and the FL English, as a mediating tool for learning, building on Vygotskyan sociocultural theory. The results indicate that HL can be used as mediational means for purposes that have been found to facilitate FL learning, and that especially younger learners (8-year-olds) make use of their HL as a tool for learning. Moreover, the microgenetic analysis of the relationship patterns in learner interaction revealed that learners' use of their HL seems to enable them to co-construct a collaborative pattern of interaction, which has been found to be conducive to learning (Storch, 2002). This study demonstrates the potential of taking the parallel theoretical lenses of translanguaging theory and sociocultural theory and provides further evidence on the utility of translanguaging pedagogy.

**Keywords:** Translanguaging ◆ sociocultural theory ◆ collaborative dialogue ◆ collective scaffolding ◆ young learners ◆ Arabic as a heritage language ◆ English as an additional language ◆ L1/L2 use

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## Introduction

Language policies enforced in schools in Europe remain largely monolingual, enforcing the majority language-only use, despite the increasing linguistic diversity (Gogolin, 2008; Yağmur & Extra, 2011). In addition, the language policies of foreign language (FL) teaching add another monolingually oriented norm of English-only use (Kerr, 2019). This parallel or double monolingualism norm (Jørgensen, 2008) renders learners' existing knowledge of other languages invisible and unutilized. Considering the increasing number of children that speak Arabic as a heritage language (HL) at home[1], which they are commonly not allowed or encouraged to use at school, these policies create unequal language realities in the classroom that may hinder learning (Auer & Li Wei, 2007, p. 5). The term heritage language refers to

> a language spoken at home or [a language that is] otherwise readily available to young children, and crucially this language is not a dominant language of the larger (national) society. (Rothman, 2009, p. 156)

The societal dominance of the majority language, German, in the context of the study (here also referred to as the second language[2], L2) and the exclusion of the HL from the context of learning pose challenges to the maintenance of the HL as it is especially with school-aged children that the majority language tends to become the most used language, decreasing the amount of HL interaction and confining its use to the home (Montrul & Polinsky, 2019). Arabic can naturally only be considered a minority language in this specific European context, as globally for instance Arabic is spoken by an estimate of 274 million people as their first language (Eberhard, Simons, & Fennig, 2023b). Considering the diglossic nature of Arabic, i.e. that most speakers of Arabic speak one of the spoken varieties growing up, the real number of speakers is likely to be much higher (Ferguson, 1959; Versteegh, 2014).

It is also important to note that the maintenance of children's HL by no means stands in opposition to their development of further languages: Existing research evidence indicates that

[1] In Germany, which is the context of the present study, the number of foreign citizens with a Syrian citizenship, for example, has increased from only 70 000 in 2014 to over 800 000 in year 2021, as per Ministry for Statistics Berlin-Brandenburg (2021).

[2] The use of terms L1, L2, Ln etc. in the context of multilingualism presents a challenge due to the complexity of linguistic backgrounds. In the context of this study it is important to make the distinction between the majority language spoken in the environment, which is commonly referred to as the second language (L2), and the foreign language (FL) English taught in the school (Gass and Selinker (2008). While the numbering (e.g. in L2) does not accurately describe the order of acquisition for each participant, in order to describe the context comprehensibly, this convention is maintained.

the maintenance and development of strong first language (L1), or HL, abilities can facilitate the learning of additional languages (European Commission, 2015).

Hence, due to the parallel monolingualism norms and the lack of top-down programs of HL Instruction in Germany (Ministry for Statistics Berlin-Brandenburg, 2018), other grassroots-level solutions to enabling HL use in schools are needed (Cummins, 2007). Translanguaging pedagogy provides such an alternative pedagogical approach which strives to capitalize on multilinguals' whole linguistic repertoire for learning both language and content (Cenoz & Gorter, 2021).

The present study focuses on the school context in which the objective is to support all learners' acquisition of further languages, i.e. on the foreign language (FL) classroom. As previous research shows that learners commonly use their L1 to support their FL learning in peer interaction when this L1 is a majority language (DiCamilla & Antón, 2012; Swain & Lapkin, 2013), the present study investigates how young HL speakers of Arabic with a multilingual repertoire (HL Arabic, L2 German, FL English) use their linguistic repertoire in task-based peer interaction. In order to investigate the potential of using HL as a mediational tool in FL learning, translanguaging as pedagogical approach was adopted.

The study sought to answer the following research questions:

1) What changes, if any, can be observed in the purposes for which the heritage language Arabic and the second language German are used by young FL learners in task-based peer interaction in the course of three years?
2) How, if at all, do the patterns of language use and learner relationships change in the course of three years?

In order to investigate the longitudinal changes in learners' translanguaging practices, a multiple-case study with two HL speakers of Arabic was conducted. The learners were working on problem-solving tasks (Bygate, Skehan, & Swain, 2014) at two points in time: Time 1 as 8-year-olds and Time 2 as 11-year-olds. In this way the study investigates how the learners use their HL, besides the L2 German and the FL English, as a tool for learning, building on Vygotskyan sociocultural theory (Lantolf & Thorne, 2006; Vygotsky, 1987). Thus, learners' language use at the time close to the arrival in the host country, and after 3 years of school entry was examined. The following sections outline the theoretical frameworks and review the

existing research evidence on learners' L1 use in peer interaction during additional language learning[3].

## Theoretical framework

Based on the work of Cen Williams (1994), several scholars (especially García & Li Wei, 2014) have advanced the concept of pedagogical translanguaging (Cenoz & Gorter, 2021). The focus in this study lies on learners' use of translanguaging (commonly referred to as translanguaging to learn), as in the context of the study teachers rarely are familiar with the HL of the learners (Dausend & Lohe, 2016).

While 'translanguaging to learn' was used as the pedagogical strategy, for the theoretical and analytical purposes of the present study, Vygotsky's sociocultural theory (SCT) was adopted. Essentially, Vygotsky postulated that individuals use a multitude of culturally created psychological tools, most importantly language, to mediate and regulate their cognitive behavior (Kozulin, 2003; Lantolf & Thorne, 2006; 2007). As children learn to mediate their thinking and learning in their L1 in their childhood, this theoretical perspective foregrounds the role of learners' L1 when learning additional languages. Therefore, SCT can be applied in an analysis of learning and thinking processes where learners use their entire linguistic repertoire or translanguage (Donato & Lantolf, 1990; Swain & Lapkin, 2000).

Furthermore, according to SCT, developmental processes occur via participation in cultural and linguistic settings in family and peer group interactions and in institutional contexts (Lantolf & Thorne, 2007, p. 197). As the collective behaviour in social interaction can be transformed into individual mental resources, task-based peer interaction between learners where they use language as mediational means can activate developmental processes that become visible in such interaction (Donato & Lantolf, 1990; Swain, 2000).

Thus, SCT can inform the development of a research design that supports learners' development and investigates learners' language use, or translanguaging, as mediational means when they are engaged in additional language learning (Lantolf, 2012). Combined with the translanguaging perspective, SCT can therefore contribute to investigating the role of learners' translanguaging practices in language development (cf. Smith & Robertson, 2020 for a detailed

[3] 'Additional language learning' is used to cover both the contexts of Second Language Learning and Foreign Language learning, following Murphy's (2018) concept of English as an Additional Language (EAL). The term provides a more dynamic alternative to these existing concepts that pose challenges when referring to the diverse linguistic backgrounds of multilinguals (Prada and Turnbull, 2018). Each of the more specific terms are referred to when the differences between these language learning contexts are relevant for the discussion and implications of existing research.

discussion) and counter some criticism forwarded against translanguaging pedagogy, specifically whether it can facilitate L2 or FL learning (Li Wei, 2022).

*L1 use in task-based peer interaction*

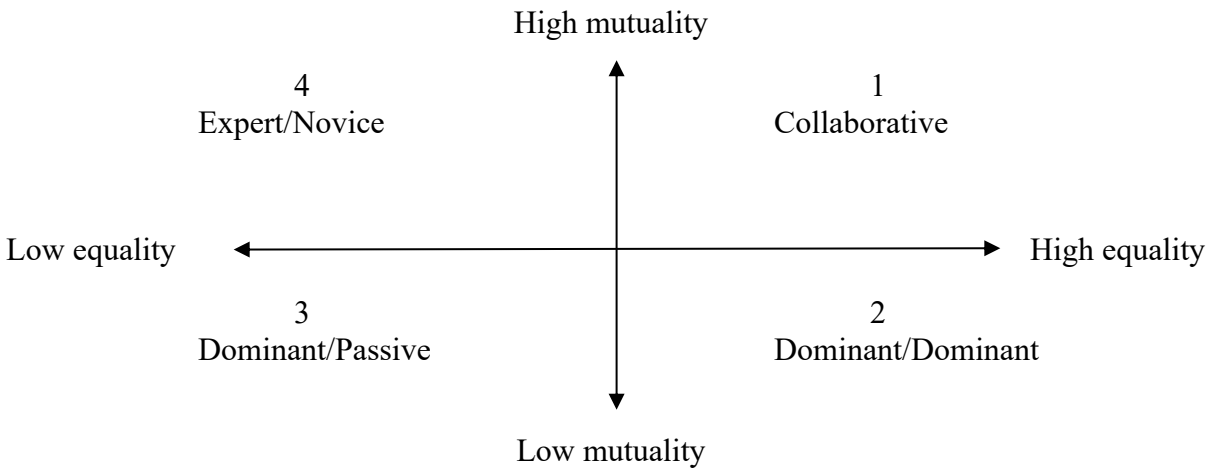
Existing studies within SCT have found several ways in which learners use their shared L1 in task-based peer interaction for additional language learning, namely for collective scaffolding, as private speech, i.e. as a cognitive tool for problem resolution (Antón & DiCamilla, 1998; 1999; Villamil & Guerrero, 1996), as mediational means during collaborative dialogue (Storch & Wigglesworth, 2003; Swain & Lapkin, 2000), and to create intersubjectivity (Antón & DiCamilla, 1999). Notably, several authors have concluded that these uses of L1 may support additional language learning in peer interaction.

In their study with university students of Spanish in the U.S. (L1 English) Antón and DiCamilla (1998) observed that during collaborative dialogue learners' HL use provided them with a critical tool for accessing TL forms and meanings and was thus perceived to facilitate TL learning (cited in DiCamilla & Antón, 2012, p. 165). In an ESL context in Australia, Storch and Wigglesworth's (2003) learners (HL Indonesian or Mandarin Chinese) also used their shared HL in peer interaction for task management, task clarification and for collaborative dialogue, which authors state to demonstrate the use of language as a mediating tool and facilitate task completion (cf. Pladevall-Ballester & Vraciu, 2017; Swain & Lapkin, 2000 for similar results).

In their research Antón and DiCamilla (1998; 1999) further found that L1 use for scaffolding enables learners to collaborate effectively (DiCamilla & Antón, 2012, p. 164). Through such collective scaffolding by peers (Davin & Donato, 2013), learners as novices are able to pool their knowledge and together become collective experts (Donato, 1994). Specifically, Donato (1988), among others (Kowal & Swain, 1994), found that collaborative interaction, where learners build a collective, is more conducive to language learning as all members contribute to the task resolution through scaffolding and by collaboratively solving language-related problems.

Building on this line of research, Storch (2002) investigated the task-based performance of university ESL learners in Australia, mostly of Asian origin. Storch's (2002) learners engaged in 4 kinds of relationship patterns, which differed in the degree of equality and mutuality (following Damon & Phelps, 1989) involved as illustrated in Figure 1:

Figure 1. A model of dyadic interaction (reprinted with permission from Storch, 2002, p. 128)




Learners that engaged in collaborative or expert/novice relationships provided the highest amount of collective scaffolding and also transferred the collaboratively constructed knowledge into their individual work. Therefore, interaction characterized by high mutuality in Storch's (2002) study was connected with conducive learning conditions, as learners showed a high level of engagement with each other's contributions and provided a great deal of reciprocal feedback.

The existing evidence above for the utility of HL or L1 use for additional language learning does not, however, call in question the importance of using the target language (TL). While Second Language Acquisition (SLA) scholars agree that maximizing the TL use is essential for additional language learning, such maximal TL use does not necessitate banning other languages from the language classroom (Tognini & Oliver, 2012; Turnbull, 2001). As the review of existing research above indicates, occasional and strategic use of learners' existing linguistic repertoire may be supportive for learning an additional language (cf. also García Mayo, 2017; Hall & Cook, 2012; Kerr, 2019).

The existing studies within sociocultural theory reviewed above have focused on older learners and adults, and young learners have not gained attention so far (with the exception of Pladevall-Ballester & Vraciu, 2017). As research results gained from adult populations cannot readily be extended to young learners, this learner group warrants special attention (García Mayo &

Hidalgo, 2017; Pinter, 2007). Furthermore, most studies have thus far focused on learners' use of their majority L1, and minority HLs have gained less attention. Due to the different sociolinguistic context in which HL is used, this target group warrants further investigation. Finally, no study has thus far investigated the question of HL use in learner interaction longitudinally in the FL teaching context. Considering these research caveats, the present study focused on young learners who speak a HL at home and pursued the longitudinal perspective on these learners' language use.

## Methodology

### *Research design*

To address the research questions, a longitudinal qualitative multiple-case study (Duff, 2008) with two learners of English was conducted in an English as a foreign language (EFL) classroom in a primary school in Germany. The research design allows a holistic, in-depth investigation of multilingual participants (Berthele, 2012). With the research caveats in mind, the case selection focused on young learners, and the available HL speakers in this classroom-based study further narrowed down the selection to two learners speaking Arabic as their HL and German as their L2 (Lanza, 2008).

The interaction data was collected as part of the regular FL classroom work and learners' dyadic task-based interaction was recorded on video and audio. Task-based design informed by sociocultural theory can activate developmental processes and the use of language as mediational means, all of which become visible in learner interaction (Donato & Lantolf, 1990; Swain, 2000). Task-based peer interaction was recorded at two points in time: at Time 1 in 2019, when learners were in third grade and at Time 2 in 2022 when learners were in sixth grade.

With the high internal diversity among HL speakers, a longitudinal case study allows the investigation of individual differences in HL speakers' use of their entire linguistic repertoire (Hua & David, 2008). Furthermore, as the data collection extended over three years of schooling, long-term effects of educational language policies on learners' language use and translanguaging-to-learn may be traced.

Prior to the data collection, the researcher spent two months observing and interacting with the learners in German to facilitate the building of relationships (Nortier, 2008). Furthermore, she conducted background interviews in German at Time 2 in 2022 with the 11-year-old learners, Aryam and Israa (pseudonyms). Data on learners' linguistic background was collected with a

parental questionnaire (cf. Appendix) in both German and Arabic versions as well as through individual background interviews with the learners (Li Wei & Moyer, 2008).

For the task-based data collection spot-the-difference tasks were used. These are two-way information gap tasks (Brooks & Donato, 1994) that require both learners to contribute to the task resolution (Gibbons, 2011; Nunan, 2004). Pinter's (2007, p. 192) two types of picture differences were used (Types 1-2) and a third type (Type 3) added to ensure the task difficulty level pushes learners' language development (Lantolf, 2011) and use of their entire linguistic repertoire:

> Type 1: in picture A a particular item was present but it was missing in picture B (Pinter, 2007, p. 192)
> Type 2: the number of a particular item in picture A was different from B (Pinter, 2007, p. 192)
> Type 3: the color and/or location of the item differ between the pictures.

Task instructions resembled the usual English-only policy of the classroom. In pairing the HL speakers, however, translanguaging-to-learn approach was implemented to enable learners to use their full linguistic repertoire. In the longitudinal design, procedural task repetition strategy (same procedure, different content) was used as it most naturally aligns with the variation of themes in regular FL classrooms (Azkarai & García Mayo, 2017, p. 485). The content and task differences at Time 1 and Time 2 were distributed as follows (Table 1):

**Table 1:** Task content and differences

| Task differences | Task content |
|---|---|
| Time 1: Type 2 differences in the number of items | Task 1: Farm animals<br>Task 2: Pets |
| Time 2: Type 1, 2 and 3 differences in the number, location, and color of items | Task 1: Household chores<br>Task 2: Professions |

*Data analysis*

The oral interactions of the dyad were transcribed verbatim using CHAT transcription (cf. Appendix), also known as CLAN/CHILDES, which transforms the interaction into c-units (MacWhinney, 2000; 2019). The Arabic interactions were translated by a multilingual team of an Arabic native speaker and a German native speaker, both with high proficiency in English.

The data analyzed consisted of interactional sequences in which learners were working on the task, which amounted to 34 min of interaction at Time 1 and 40 mins of interaction at Time 2.

The first cycle of coding focused on purposes of HL and L2 use, that is, on the first research question. In the first step of this analysis, provisional *a priori* codes (Table 2) for the purposes of L1 use found in prior research were coded deductively in the interactional data, with the respective operationalization indicated in Table 2 (Miles, Huberman, & Saldaña, 2014). In the subsequent inductive cycle of coding, the *a priori* codes were supplemented with subcodes that were grounded in the specific ways in which the two learners used their HL and L2 in this interactional data (ibid.).

**Table 2.** Coding categories

| Coding category | Subcategories |
|---|---|
| Collective scaffolding[4] (Donato, 1994; Wood, Bruner, & Ross, 1976) | Recruitment: "enlisting the learner's interest in the task" (Wood et al. 1976; cited in Antón & DiCamilla, 1998, p. 318) |
| | Simplifying the Task: "Reduction in degrees of freedom – simplifying the task" (ibid.) |
| | Direction Maintenance: "keeping the learner motivated and in pursuit of the goal" (ibid.) |
| | Marking Critical Features: "highlighting certain relevant features and pointing out discrepancies between what has been produced and the ideal solution" (ibid.) |
| | Frustration control: "reducing stress and frustration during problem solving" (ibid.) |
| | Demonstration: "modelling an idealized form of the act to be performed by completing the act or by explicating the learner's partial solution" (ibid.) |
| | Task management: "moving the task along" (Swain & Lapkin, 2000, p. 258) |
| Collaborative dialogue (Swain & Lapkin, 2000) | Operationalized as Language-related episodes (LERs) which refer to "any part of a dialogue where the students talk about the language they are producing, question their language use, or correct themselves or others" (Swain & Lapkin, 1998, p. 326) |

[4] Wells (1999) provides a critique of Antón and DiCamilla (1998) understanding of scaffolding, which was originally coined to refer to expert-novice interactions, and rather refers to this kind of behaviour in peer interaction with more equal power structures as "collaborative problem-solving".

| | |
|---|---|
| Private speech (Lantolf, 2000) | Speech that "is not directed to another person but toward the child itself" (Lantolf, 2000, p. 15). Such "private speech utterances were comments to self, made with no discernible intent to have the peer hear what was said. Usually, these … were mumblings … for which there was no response or reaction from the peer" (ibid.). |

As the first two rounds of coding and the qualitative comparison of learners' translanguaging at Time 1 and Time 2 revealed some significant changes in learners' translanguaging and the relationship patterns (Storch, 2002) during task resolution, these were investigated in more detail in the next step of the analysis to answer the research question 2.

At this analysis stage, learners' translanguaging-to-learn and the relationship patterns (Storch, 2002) were analyzed using the microgenetic method of SCT. In microgenetic analysis, the developmental process as it unfolds in interaction is observed in its sequential context when learning is in transition. Microgenetic analysis thus traces how language and language learning is co-constructed moment-to-moment in social interaction (Ganem Gutierrez, 2007). Specifically, the analysis focused on how learners co-constructed their relationship patterns moment by moment in the learner interaction following Damon and Phelps (1989) and Storch (2002), that is, how learners demonstrated equality and mutuality in the interaction (cf. Table 3).

**Table 3**. Definitions of the indexes for peer engagement: Mutuality and equality (compiled by the author from Damon & Phelps, 1989; Storch, 2002)

| Index of peer engagement | Definition |
|---|---|
| Equality | Refers to "the degree of control or authority over the task", where participants in interactions of high equality not only share turns relatively equally but both participants also control the direction of a task equally (Storch, 2002, p. 127) and give and take directions from each other (Damon & Phelps, 1989) |
| Mutuality | Refers to "the level of engagement with each other's contribution" (Storch, 2002, p. 127). Equal discourse in peer engagement is "extensive, intimate and 'connected'" (Damon & Phelps, 1989, p. 10) and shows a wealth of reciprocal feedback and sharing of ideas (Storch, 2002, p. 127). |

Finally, the purposes of HL and L2 German use and relationship patterns (Storch, 2002, p. 127) in the different task resolution times were compared longitudinally between Time 1 and Time 2.

*Context and participants*

The school implemented a monolingual German-only policy, as per headmaster. The EFL lessons by and large followed the textbook-based communicative language teaching methodology (Grimm, Meyer, & Volkmann, 2015). As to the classroom language policy, English was commonly used during classroom routines and for content that is the focus of learning. German was used for interpersonal interaction and for clarifying instructions and vocabulary. While the instructor changed between Time 1 and 2, classroom observations and recorded lessons show that the approach to teaching and language policy remained very similar.

The data from the background interviews and parental questionnaires show that both learners were born in Syria, and speak Arabic at home. Aryam arrived in Germany in 2016 at the age of 5 and has been learning German in the school since. She speaks Arabic at home with her parents, and German with her brother. Aryam uses mostly German in her free time and with her friends. She uses both Arabic and German media. In relation to her language preferences, she prefers to speak German to Arabic, but also enjoys speaking English. All in all, Aryam's use of Arabic is thus limited to interaction with her parents. She learned English at school in Syria for two years and continued learning it in Germany. She reports speaking German better than Arabic, and that for her, Arabic is the most difficult language to learn.

Israa arrived in Germany in 2018 at the age of 7 and has been learning German in school since then. She speaks Arabic at home with her parents and her sister. At school Israa speaks German most often. She uses media and speaks with her friends both in German and Arabic. All in all, Israa seems to use Arabic with more people (her sibling and friends) and in more contexts (also outside her home) than Aryam. Israa also prefers to speak Arabic to German. According to the parental questionnaire, Israa's Arabic abilities are good. She reports difficulties in understanding and learning English. Data on the onset of her English learning was not provided by the parents but classroom observation shows that she is likely to have started learning English in Germany, that is, she has a considerably shorter English learning background than Aryam.

Furthermore, Aryam reports that when the newly-arrived Israa could not understand much German, she had to speak Arabic to her, but that in 2022, after 3 years, they mostly spoke German with each other. Israa states that Aryam always speaks German to her.

## Findings

Next, the results on the purposes of HL and L2 use are discussed, and subsequently learners' translanguaging and relationship patterns are delineated in more detail.

*Research question 1: Purposes of HL and L2 use in learner interaction*

The analysis of the first research question, that is, the purposes for which learners used their HL Arabic and L2 German, uncovered the following main purposes for which the HL Arabic was used at Time 1 (3rd grade):

1. Task management (making sense of the task instructions, Example H line 7; turn allocation, Example E line 1)
2. Simplifying the task (Example A)
3. Direction maintenance (Example H lines 9-10)
4. Negotiating and clarifying semantic information (clarification request, Example B line 2; self-repair; providing L1 translations, Example B lines 3-4; requesting TL words, Example F lines 7-9)

The categories 1-3 include instances of learners providing each other with collective scaffolding while the category 4 involves LREs. Therefore, the result that learners use their L1, in this case their HL, for task management and for clarifying and negotiating semantic information corresponds to those found by Swain and Lapkin (2000) and can be extended to apply to young learners. In Example A, Israa provides some scaffolding in Arabic by simplifying the task:

**Example A**. (Time 1, Task 2, lines 162-163)

Israa: **la bas ʕndik ktiir kitibii bilmalaff innu ana ʕndi kalb waḥid.**
*no but you have many # write into folder that i have got one dog.*

Learners frequently used their HL to translate the TL English items and create a shared understanding of the intended meaning, as visible in Example B. Swain and Lapkin (2000) found a similar use of the majority L1 for translating some TL items with their adult learners.

**Example B**. (Time 1, Task 2, lines 226-233)

1) Israa: <u>how many rabbits?</u>
2) %com: Israa leans over to Aryam.
3) Aryam: **shuu?**
*what?*
4) Israa: <u>rabbits.</u>

5) Israa: **ilarnab.**
*rabbits*.

**Bold**: Arabic
Underlined: English
Standard font: German
*Italics*: English translation

At Time 1, only the HL was used for such translations. In the learner interaction at Time 1, the L2 German was used very rarely and the only purpose for which the L2 was used was by Aryam for task management, specifically for allocating turns during the task resolution, as in Example C:

**Example C**. (Time 1, Task 2, line 106)

Aryam: du muss mich dann fragen # Israa du musst fragen.
*you must ask me then # Israa you must ask*.

At Time 2 (6th grade), three years later, no use of the HL in the learner interaction could be observed. In contrast, learners used their L2 German abundantly and for a variety of purposes:

1. Task management (making sense of the task instructions and next steps in the task resolution; turn allocation, Example L line 1; voice policing, Example K line 5; time management; indicating learning strategies, Example J line 1)
2. Simplifying the task (Example L line 17)
3. Direction maintenance (Example D)
4. Recruitment (Example J lines 1, 9 and 11)
5. Language policing (Example J line 22)
6. Negotiating and clarifying semantic information (clarification request, Example J lines 3 and 14:
7. Providing L2 translations, Example J lines 11-19, Example L lines 7-15; requesting TL words)

The categories 1-4 involve scaffolding, while the category 6 includes LREs. Category 5 is a result of the inductive analysis, where the uses of HL Arabic and L2 German not found in previous research and hence not included in the a priori codes in the deductive part were considered. This category will be discussed in the next section in more detail. An example of learner scaffolding can be seen below, where Aryam provides direction maintenance:

**Example D**. (Time 2, Task 1, line 96)

Aryam: ich darf es nicht angucken man # deswegen machen wir es ja auch.
*i'm not allowed to look man # that's why we are doing it in the first place*.

Due to space limitations, some more data excerpts can be found in the upcoming section in the examples indicated. All in all, these results from the first two cycles of coding indicate that HL speakers, that is, speakers of a minority L1, can use their HL for purposes that may support the FL learning, as has been shown with majority L1 speakers in previous research (Antón & DiCamilla, 1998; 1999; Swain & Lapkin, 2000; Villamil & Guerrero, 1996). Moreover, such HL use, as observed in the longitudinal data, seems especially useful for young learners (here 8-year-olds) when they are only beginning to develop their abilities in their L2 and in the FL.

*Research question 2: Relationship patterns and language use at Time 1*

The moment-by-moment microgenetic analysis of learner interaction revealed some patterns of translanguaging and learner relationships. Specifically, the inductive analysis of patterns made the kind of relationships in which learners engage salient in the data, and a dynamic development in these kind of relationships, in Storch's (2002) terms, could be observed.

At Time 1 learners were in third grade, and while Aryam had been living in Germany for three years already, Israa had only spent one year in the country. Both had been learning English for half a year in Germany, and Aryam reported having learnt English for two years in Syria already.

At Time 1, during the task resolution of both tasks, the learners are engaged in a collaborative relationship, both contributing to all parts of the task resolution and showing willingness to listen to and discuss each other's ideas (Storch, 2002, pp. 127–128). In Example E, Aryam manages the task resolution by encouraging Israa to take the turn and ask questions, hence contributing to the more collaborative pattern of interaction. After this scaffolding move that pushes Israa towards a more active role, she proceeds to ask questions in the TL (lines 2 and 8) for the first time. As in two-way tasks it is essential that both learners provide information to each other (Nunan, 2004), and since there are items that are missing in one of the pictures, this scaffolding considerably contributes to effective task resolution:

**Example E**. (Time 1, Task 1, lines 17-39)

1) Aryam: du muss mich dann fragen # Israa du musst fragen.
*you must then ask me # Israa you must ask*.

2) Israa: how many goots?
3) Aryam: wa?
*what?*
4) Israa: hoots.
5) Aryam: goose [=! quietly to herself].
%com: Aryam is looking at her picture.
6) Aryam: three.
7) Israa: three?
%com: Israa raises three fingers, Aryam nods to confirm.
8) Israa: how many duck? #15
%com: Aryam looks uncertainly at her partner, looks at her own picture.
9) Israa: **baṭa**.
*duck*.
10) Aryam: two.
%com: raises two fingers.
11) Aryam: **inti kam baṭa ʕndik?**
*how many ducks do you have?*
12) Israa: **arbʕa.**
*four*.

The LRE on lines 2-7 that revolves around the TL item "goats" indicates that young learners may have difficulties in using the TL only to clarify misunderstandings and create shared understanding, as Lantolf, Thorne, and Poehner (2015) noted: Israa's inaccurate pronunciation of "goat", which cannot be clarified with a clarification request (line 3), leads Aryam to conclude the intended item is 'goose', producing this as private speech to herself (line 5). Hence, neither of the learners become aware of the misunderstanding.

In the LRE on lines 8-12 Israa poses another question, and after not receiving a reply, goes on to translate the TL item "duck" into Arabic, to clarify her intended meaning. In SCT terms, in this example Israa uses their shared HL as mediational means for language learning. As this is the first instance of Arabic use in the task resolution, the Example E illustrates how translanguaging-to-learn and especially the HL use may enable both learners to engage equally and mutually in the task resolution, co-constructing a "joint problem space" (Roschelle & Teasley, 1995, p. 70) and a collaborative pattern of interaction (Storch, 2002).

The collaborative relationship, which is characterized by high levels of mutuality and equality (Storch, 2002), may be conducive for learning as learners work together towards resolution of (linguistic) problems. In Example F, in the LRE on lines 7-11 we can see evidence of such collaborative problem solving, where Israa requests a translation of the TL item "turtle", which Aryam provides in a scaffolded way, pronouncing it slowly and clearly and repeating the item to ensure Israa can form a clear image of the form of the TL word.

**Example F**. (Time 1, Task 2, lines 179-215)

1) Israa: **kam sulhufaat ʕndik?**
*how many turtles do you have?*
2) Aryam: **shuu?**
*what?*
3) Israa: **sulhufaa.**
*turtles*.
4) Aryam: fünf.
*five*.
%com: Aryam raises four fingers.
5) Israa: fünf oder vier?
*four or five?*
6) Aryam: **arbʕa.**
*four*.
7) Israa: **shuu isma sulhufaat?**
*what's the word for turtles?*
8) Aryam: **shuu?**
*what?*
9) Israa: **shuu isma sulhufaat?**
*what's the word for turtles?*
10) Aryam: turtle.
%com: pronounces the word clearly and slowly.
11) Aryam: turtle.
%com: Israa turns her picture around to show to Aryam. Aryam takes a clean sheet of paper, writes down a word on it and hands it over to Israa who copies the word in her sheet. Then both look at their pictures again.

Keeping in mind that Israa has had less time of exposure to both L2 German and English, her HL use here can mediate the TL use, especially when the TL and L2 proficiency is very low, as Tognini, Philp, and Oliver (2010) and Payant (2018) observe. Furthermore, in the learner interaction at Time 1, the HL Arabic and L2 German use does not seem to hinder the TL use or language learning, as learners consistently switch to the TL for the apparently familiar question-reply pattern:

**Example G**. (Time 1, Task 1, lines 24-26)

1) Aryam: how many horse on the farm?
2) Israa: two [=! quietly].
%com: shows number two with her fingers, then points to her picture.

Learners' collective scaffolding is a further characteristic of collaborative peer interaction, where the role of the expert is not assigned to one learner, as in expert/novice kind of

relationship, but may be taken over by either of the learners (Donato, 1994; Storch, 2002). In the Example F, on the one hand, such scaffolding occurs on lines 10 and 11, where Aryam demonstrates the pronunciation of the TL item "turtle" clearly and slowly, simultaneously marking the critical features in the spoken form of the TL word. She then goes on to write down (assumably) the same word on a piece of paper (line 11) and demonstrates the written form of the same item.

In Example H, the initiation of questions and scaffolding is conducted by both learners in an equally distributed way, as typical of the collaborative pattern. Whereas Aryam poses the first TL question (line 1), Israa takes the initiative next to pose a question in English (line 5). When Aryam does not reply, Israa pursues the task resolution by switching to Arabic (line 7) and tries to make sense of the task and attempts to recruit her partners' interest (lines 8-9) and pursues the task objective by repeating her earlier TL question in the HL (line 9):

**Example H**. (Time 1, Task 2, lines 25-51)

1) Aryam: Israa #2 how many sh fish?
2) Israa: bitte?
   *excuse me?*
3) Aryam: how many fish [=! Israa looks at her picture].
4) Israa: sechs.
   *six*.
5) Israa: how many dog? #15
   %com: Aryam does not reply, looks at her picture, after a long pause Aryam raises her head and looks at Israa.
6) Israa: dog.
   %com: Aryam does not reply, looks at her picture.
7) Israa: **inti waraqtik gheer waraqti.**
   *your sheet is not like mine*.
   %com: Aryam does not reply, smiles and laughs quietly, glances at the student next to Israa and smiles.
8) Israa: **ana ʕndi hoone bisse** [=! Israa points at Aryam's picture].
   *i have a cat here*.
9) Israa: **ma ʕndik kaleb?**
   *don't you have any dogs?*
   %com: Aryam does not reply nor raise her gaze to look at Israa while she is talking. Then Israa leans over to Aryam, tries to look at her picture.
10) Aryam: how many # how many cat.
   %com: Israa looks at her picture, counts animals.
11) Israa: fünf.
   *five*.

Israa therefore actively scaffolds the task resolution, using her HL alongside English and German to do so. By translanguaging with her full linguistic repertoire, she works towards creating a more collaborative relationship (Storch, 2002) and is able to participate in the peer work with high degrees of equality and mutuality. Moreover, the interaction illustrates how both learners engage in collective scaffolding where the expert role can be more flexibly taken by either of the interlocutors (ibid.).

Finally, both learners show a flexible use of language in the sense of translanguaging at Time 1. In line 4 in Example I Aryam provides scaffolding, simplifying the task by describing in detail what Israa should write, and demonstrates the idealized model solution of the task, writing the number zero in the air. Here, we can see the fluid and flexible use of languages in the sense of translanguaging (García & Li Wei, 2014), as within a single utterance Aryam switches from Arabic to German for the number "zero" and then to English for the animal "dog".

**Example I**. (Time 1, Task 2, lines 94-112)

1) Israa: how many dog?
   %com: Aryam looks at her picture.
2) Aryam: **ma ʕndi hai.**
   *i don't have any.*
3) Israa: **ma ʕndik # aktibha?**
   *you don't # should i write that?*
4) Aryam: **tiktibiha tiktibi sifr heek** null dog.
   *you write that you write zero like this zero dog.*
   %com: Aryam draws in the air with her pen, writes a zero. Israa is writing in and looking at her sheet.

It appears that Aryam, having been socialized into the German school system for three years, uses her L2 German as a cognitive tool when dealing with numbers, but for demonstrating the model TL item in question, she sticks to English.

Finally, it is especially apparent in this Example I, that while the different named languages are marked in the transcript, multilingual speakers themselves do not necessarily orient themselves or show awareness of switching from one named language to another, but flexibly and fluidly move between languages in the sense of translanguaging (Li Wei, 2018).

*Research question 2: Relationship patterns and language use at Time 2*

At Time 2, the learners are in sixth grade: Aryam has been living in Germany for six years and Israa has spent four years in the country. Both have been learning English in Germany since their third grade, Aryam two years before that in Syria. During the task resolution at Time 2,

no use of HL can be observed, but learners instead use the L2 German and TL English during task-based work.

A further longitudinal change in the pattern of interaction can be observed between Time 1 (third grade) and Time 2 (sixth grade): Learners move from the collaborative pattern of interaction towards patterns with low equality: dominant/passive patterns with some characteristics of the expert/novice pattern (Storch, 2002).

As opposed to the high level of equality and mutuality in the collaborative relationship pattern, the expert/novice pattern is characterized by one learner controlling most of the task resolution and acting "as an expert who actively encourages the other participant (the novice) to participate in the task" (Storch, 2002, p. 129). This can be seen in Example J where Aryam predominantly assumes the expert role and provides the majority of scaffolding: She recruits her partner's interest in the task (lines 7, 9, 11) and tries to simplify the task (lines 1, 5). Furthermore, Aryam acts as the teacher: She polices the language to be used, following the English-only norm (line 22) and reiterates the teacher-utterances of 'producing whole sentences' (line 24) instead of using single words, an instruction typical for FL classroom teacher talk. Aryam further instructs her partner to use her vocabulary book with English-German translations to look up words she does not know, acting as the expert who instructs her partner to use the learning strategy in question (lines 1-5):

**Example J**. (Time 2, Task 2, lines 22-47)

1) Aryam: ok # ok warte # <u>do you have at the bottom a lorry driver</u> # so jetzt gucke mal in den vokabelheft was <u>lorry driver</u> heisst # man Israa mache jetzt gucke # Israa gucke jetzt!
   *ok # ok wait # do you have at the bottom a lorry driver # so now look up in your vocabulary book what lorry driver means # oh man Israa do it now look # Israa look it up now!*
2) Israa: ich habe es verloren.
   *i have lost it.*
3) Aryam: was?
   *what?*
4) Israa: ich habe kein bock.
   *i don't feel like it.*
5) Aryam: nein du musst gucken in den vokabelheft was <u>lorry driver</u> heisst # wo ist dein vokabelheft?
   *no you have to look up in your vocabulary book what lorry driver means # where is your vocabulary book?*
6) Israa: xxx.
7) Aryam: man Israa ich bekomme eine schlechte note hierfür # mache jetzt.
   *oh man Israa i will get abad grade for this # go on now.*

8) Israa: nöö.
*nope*.
9) Aryam: mache jetzt.
*go on now*.
10) Israa: ja ich habe kein bock.
*yeah i don't feel like it*.
11) Aryam: ja du muss es aber machen # <u>at the bottom yellow äm lorry driver?</u>
*well you still have to do it # at the bottom yellow ehm lorry driver?*
12) Israa: was heisst das?
*what does it mean?*
13) Aryam: LKW.
*lorry*.
14) Israa: was?
*what?*
15) Aryam: LKW!
*lorry*.
%com: Israa looks at her picture, seems to be searching.
16) Aryam: ein großes dings da # ah man.
*a big thing there # oh man*.
17) Israa: hä meinst du das?
*what do you mean this?*
18) Aryam: ist bei dir unten auf dem bild ein LKW # also so ein auto was groß ist # man ist doch nicht schwer +.
*is at the bottom in your picture a lorry # i mean a car that is big # man it's not difficult +*.
19) Israa: ja +.
*yes +*.
20) Aryam: und welche farbe hat es?
*which color does it have?*
21) Israa: blau.
*blue*.
22) Aryam: sag doch auf englisch!
*say it in english!*
23) Israa: <u>blue.</u>
24) Aryam: sage noch ganze satz?
*say a full sentence still?*
25) Israa: oh digga # öööö # <u>thee</u> +…
*oh dude # öööö # thee +…*

Hence, in Storch's (2002, p. 129) terms, the interaction resembles the expert/novice nature as Aryam takes over the control of the task, leading the task resolution and continuously encouraging Israa to participate in the task (lines 1, 5, 7 , 9, 11). The expert also seems to dictate the language choices in the form of language policing (line 22) (Amir & Musk, 2013), and

therefore Aryam's preference to use German and English (as per the background interview) may be a further factor contributing to the non-use of Arabic.

While the interaction shows some characteristics of the expert/novice pattern, the level of mutuality between the learners does not appear to be very high. During the task resolution at Time 2, as visible in Example J, Israa demonstrates a low level of motivation to participate in the task resolution and low receptiveness to learning (lines 4, 8, 10). Such unwillingness to participate, when one "participant seems to adopt a more passive, subservient role" is typical of the dominant/passive pattern with low mutuality (Storch, 2002, p. 129). The relevant difference to the expert/novice pattern, according to Storch (2002), is that in the dominant/passive pattern the dominant learner "takes an authoritarian stance and seems to appropriate the task" (p. 129). This becomes evident both in the overwhelming amount of scaffolding provided by Aryam, but especially in her frustrated, authoritarian manner of pushing the task resolution further throughout the task-based interaction, as in Example K, where Aryam consistently uses imperatives to rush her partner (lines 1, 3) and instructs her to speak more loudly (line 5) and polices the language to be used (lines 1, 7):

**Example K**. (Time 2, Task 2, lines 50-61)

1) Aryam: jetzt stell du eine frage und beeile dich wir wollen halt fertig werden # auf englisch.
   *now you ask a question and hurry up we want to get ready # in english.*
2) Israa: jaa.
   *yees.*
3) Aryam: beeile dich. #46
   *hurry up.*
4) Israa: ist bei dir ein mann xxx.
   *do you have a man there xxx.*
5) Aryam: rede lauter.
   *speak louder.*
6) Israa: ist bei dir ein mann xxx.
   *do you have a man there xxx.*
7) Aryam: und sage es auf english.
   *and say it in english.*
8) Israa: <u>is</u> # ääää.

Further indications of low mutuality can be observed in Example J earlier, where Aryam, while assuming the expert role, shows signs of exasperation and indignation, raising her voice throughout the task resolution (lines 1, 15, 22) when Israa has problems in understanding or does not follow the task instructions (Storch, 2002). As opposed to Storch's dominant/dominant pattern, however, this disagreement is not due to high level of equal involvement in the task,

but due to Israa's disengagement with the task and Aryam's apparent frustration with her partner's withdrawal.

These slight differences to Storch's (2002) categorization of relationship patterns are not surprising, considering the different tasks used: A two-way information task used here requires participation from both learners and therefore the dominant/passive pattern as characterized in Storch's (2002) study would not lead to an entirely passive participant with the task used here.

The patterns of learners' relationship can therefore best be characterized mainly as the dominant/passive pattern, with some characteristics of the expert/novice pattern, and of low levels of equality and mutuality. The low levels of mutuality, as evidenced by Storch (2002), may be less conducive to learning. In interactions with high mutuality, "the level of engagement with each other's contribution" is high and such interactions are "rich in reciprocal feedback and a sharing of ideas" (Damon & Phelps, 1989). Low levels of mutuality involve learners missing opportunities for learning as they ignore or reject each other's proposals (Storch, 2002).

As to learners' language use patterns at Time 2, the HL use has been replaced by the L2 German which is used as a mediational means alongside English. During the LREs (Example L, lines 3-5): Aryam poses a question in English (line 3), Israa requests clarification in German (line 4), and Aryam reformulates her question into a more target-like form. This pattern is broken in situations where learners have difficulties in creating shared understanding through a reformulated question in English (lines 7-17): Aryam translates the TL item or utterance into their L2 (lines 9 and 11) and reformulates her original utterance into more TL-like form (line 11). These instances of reformulation are one way in which collaborative dialogue may contribute to language learning (Swain, 2000) as speaking produces "a product (an artifact) that can be questioned, added to, discredited" or as here, revised and reformulated (Swain & Watanabe, 2013, p. 1). Israa's clarification request, here considered as young learners' way of questioning their language use during collaborative dialogue, therefore pushes Aryam to monitor and reconsider her utterance. Both the L2 German and the use of English therefore contribute to learners' language learning processes here.

**Example L**. (Time 2, Task 1, lines 112-128)

1) Aryam: ok # jetzt stell du eine frage.
   *ok # now you ask a question.*
2) Israa: ääää öääää [=! coughs] # öämm # öääää.
3) Aryam: okay dann mache ich weiter # <u>is in the living room a girl with a guitar?</u>
   *okay then i'll continue # is in the living room a girl with a guitar?*
4) Israa: was?

*what?*
5) Aryam: do you have a girl with a guitar in the living room?
6) Israa: ja.
*yes.*
7) Aryam: okay ämm äm # do you have in the bathroom a teddy bear?
8) Israa: ääää.
9) Aryam: bathroom # badezimmer.
*bathroom # bathroom.*
10) Israa: ein was?
*a what?*
11) Aryam: do you have a teddy bear in the bathroom # ein teddybär im bad?
*do you have a teddy bear in the bathroom # a teddy bear in the bathroom?*
12) Israa: nee.
*noo.*
13) Aryam: Israa a teddybär im bad.
*Israa a teddy bear in the bathroom.*
14) Israa: was ist das?
*what is that?*
15) Aryam: ein teddybär im bad!
*a teddy bear in the bathroom.*
16) Israa: nein.
*no.*
17) Aryam: xxx markiere es einfach mal.
*just mark it.*

During the LRE on lines 7-17, learners struggle to create shared understanding, despite the repetitions and reformulations of the English utterance (lines 7 and 11) and the L2 translations of these phrases (lines 9, 11, 13, 15). During such interactions, Israa seems to have difficulties in understanding both English and German utterances. Example J (lines 11-20) shows a similar kind of challenge, where Israa's unfamiliarity with the L2 German words ("LKW", lorry), which Aryam uses to mediate her partner's understanding of the new English words, provides a challenge for learners' meaning making and task resolution. When we compare these instances to the collaborative interaction observed at Time 1, it seems that the use of HL by both learners in such situations, for clarifying meaning of TL items and task instructions, considerably contributed to resolving miscommunications more effectively.

## Discussion

In relation to the first research question, the qualitative, longitudinal comparisons of the purposes of HL Arabic and L2 German use at Time 1 and Time 2 show that HL speakers use their HL for purposes that in prior research have been found to mediate the FL learning of

majority L1 speakers (Swain & Lapkin, 2000): Learners use their HL to provide each other with scaffolded help and use their HL as mediational means during LREs (Storch & Wigglesworth, 2003; Swain & Lapkin, 2000). As opposed to the findings by Antón and DiCamilla (1998), however, the learners did not engage in private speech in their HL or L2 German. All in all, this study corroborates the conclusion that L1 use, be it majority L1 or minority HL, may be used in peer interaction as mediational means to facilitate both FL learning and task completion (DiCamilla & Antón, 2012). Furthermore, the longitudinal analysis indicates that younger, beginning FL learners (here 8-year-olds) use their HL and can benefit from this use especially, as we can see abundant translanguaging in HL Arabic and TL English in the learner interaction at Time 1 (8-year-olds), but no HL use at Time 2 (11-year-olds). This aligns with Pladevall-Ballester and Vraciu's (2017) observation that L1 or HL use can facilitate the FL development especially with low FL proficiency learners. As most studies within sociocultural framework have so far focused on the use of a majority L1 in L2 learning (Swain & Lapkin, 2000) and FL learning contexts (1998; Antón & DiCamilla, 1999) as well as on older or adult learners, this study fills in the research caveats on HL speakers' and young learners' task-based peer interaction.

As to the second research question, the longitudinal analysis of learners' language use and the relationship patterns they engaged in show that learners' abundant HL use, alongside English, at Time 1 coincides with the collaborative pattern of interaction. At Time 2, where no HL use occurs but instead the learners use their L2 German alongside English, the relationship pattern is of dominant/passive kind, with some characteristics of expert/novice relationship pattern. Specifically, the moment-to-moment microgenetic analysis of the mutuality and equality (Damon & Phelps, 1989; Storch, 2002) which learners demonstrate, indicates that the HL use at Time 1 may enable both learners to engage equally and mutually in the task resolution, co-constructing a "joint problem space" (Roschelle & Teasley, 1995, p. 70) and a collaborative pattern of interaction (Storch, 2002). Important for the question of the potential of translanguaging-to-learn to promote FL learning, as seen at Time 1 when learners use their entire linguistic repertoire, is Storch's (2002) finding that high levels of mutuality (related to collaborative relationship pattern, cf. Figure 1 earlier) may be more conducive to learning. This is due to the fact that in interactions with high mutuality, learners engage with each other's contributions, collaboratively discover and share ideas and provide abundant reciprocal feedback (Damon & Phelps, 1989), whereas low levels of mutuality involve learners missing opportunities for learning as they ignore or reject each other's proposals (Storch, 2002). As visible at Time 2 in the dominant/passive interaction, Aryam was the one assuming the role of

the dominant expert and providing scaffolding, while Israa remained relatively reluctant to participate in the task resolution.

While further longitudinal studies are required to corroborate the relationship between HL use and the emergence of collaborative interaction patterns, these findings indicate that learners' HL use as part of translanguaging-to-learn in peer interaction may indeed be more conducive to learning, as it enables HL speakers to utilize this language to engage equally and mutually in the task resolution. This became visible in the peer interaction at Time 1, as the abundant HL use by Israa enabled her to clarify task instructions, provide scaffolding and participate on a more equal and mutual basis in the task resolution. Hence, HL use may be specifically useful for HL speakers with lower levels of L2 and TL competence and who have only recently arrived in the host country, as was the case with Israa. Indeed, García and Li Wei (2014) emphasize that translanguaging-to-learn can enable beginning learners, or 'emergent bilinguals', to engage in cognitively complex activities and to socially and cognitively participate in the learning process in ways that extend their languaging and meaning making. Of course, it is possible that further factors not considered here may contribute to the change in relationship pattern as well, such as a possible increase in the disparity of learners' proficiency in TL English (Damon & Phelps, 1989), which would need to be considered in further studies.

Furthermore, the collaborative peer interaction at Time 1 shows how young FL learners engage in collective scaffolding and the 'expert' role can be more flexibly taken by either of the interlocutors, similar to previous findings on the concept of 'collective expert' with adults (Donato, 1994; Storch, 2002). Significantly, the data with these two multilingual learners demonstrate that the fluid nature of expertise varies not only according to their differing knowledge of the TL, which has been the focus in SCT literature hitherto, but it varies also in relation to learners' expertise in their different named languages. This becomes visible in the analysis of scaffolding in the data, as Israa's HL use seems to contribute to her ability to engage in collective scaffolding to a higher extent (as seen in the collaborative pattern at Time 1) than in the interaction without HL use (as evident in the mostly dominant/passive pattern at Time 2). Accordingly, García and Li Wei (2014, p. 80) have noted that even 'emergent bilinguals' with low levels of proficiency are able to model and mediate forms of knowing and talking to their peers (Fitts, 2009) through translanguaging. Hence, taking the translanguaging lens in the investigation of the nature of expertise as demonstrated in learner interaction can corroborate findings and extend concepts that have thus far not been considered from the multilingual perspective.

Finally, at Time 2 after three years of schooling, the sixth-grade learners no longer use their HL Arabic during peer interaction, but only the L2 German and TL English. The collected data in this study can provide only indications for the reasons of disappearing HL use, and future longitudinal investigations with several data collection points could reveal further, more nuanced insights into how learners' language choice and HL use changes over time. Nevertheless, the interviews show that Aryam and Israa have few contexts for HL use overall and only Israa uses her HL outside home with friends, which could partly explain the disappearing use of Arabic. Also, Aryam's preference to use German and English as Israa's proficiency increases may be a further factor contributing to the non-use of Arabic, and her role in determining the language choices would be especially strong in the dominant/passive pattern as seen at Time 2, when she engages in language policing to maintain the English-only norm (Amir & Musk, 2013).

The disappearance of the HL use is perhaps unsurprising when we consider the strong monolingual orientations of the school (Gogolin, 2008). The monolingual norms of schools and FL education seem to set some limits to the potential of translanguaging-to-learn pedagogies to integrate minority language use, as perceived at Time 2. Further, as DiCamilla and Antón (2012, pp. 167–168) note, HL use is marked in contexts where another L2 dominates, and learners show a tendency to adopt the use of the majority language norm. Considering this tendency, in contexts where possibilities for HL use are limited, it seems crucial to create spaces for HL speakers to use their dominant language for learning and develop their abilities to use this language for higher mental functions, which can be supported by collaborative work in the HL (Vygotsky, 1978). This kind of development to use language as a mediational tool for thinking and learning is supported by the school system in the majority language, but such opportunities for HLs are practically non-existent in the monolingually-oriented education system. As developing the ability to use the L2 or the TL as a tool for thinking takes a considerable amount of time (Ableeva & Lantolf, 2011), HL use can function as mediational means while learners develop their L2 and FL abilities. Translanguaging pedagogies offer the possibility to counter these monolingual practices, as demonstrated in the present study.

Furthermore, while the di- and multiglossic nature of Arabic language was not further investigated in this study, translanguaging pedagogies appear suitable to integrate both learners' linguistic diversity in different named languages as well as the multidialectal diversity among Arabic HL speakers, as learners can utilize their language variety to create shared understanding with peers with similar linguistic repertoires (cf. Abourehab & Azaz, 2023 for a discussion).

Investigations of learners' HL use in classrooms involved in additional language learning should consider the wider societal context in order to understand learners' language use in depth. A more detailed sociolinguistic profile of the learners, including for example information on the socioeconomic background of the parents was not retrieved, nor were changes in learners' HL use at home or at their spare time over time collected. As both are relevant when considering longitudinal changes in language use, these remain limitations of this study and should be considered in future research to understand changes in HL use over time (Ortega & Iberri-Shea, 2005).

## Conclusion

As especially young FL learners may have difficulties in using the TL only to clarify misunderstandings and create shared understanding, HL use can contribute to learners' ability to mediate their additional language learning, and maintain their HL, especially when the L2 and TL competence is relatively low. Moreover, the results indicate that HL is used in similar ways to the majority L1 used by adult FL or L2 learners in previous research, which have been found to facilitate additional language learning. For young learners especially, translanguaging that includes their HL appears to be a necessary mediating tool that facilitates task completion and is used to mediate additional language learning.

Furthermore, translanguaging-to-learn in peer interaction where both learners are willing to engage in HL use may enhance learners' ability to engage in language learning in a more collaborative manner regardless of diverging language competences in the L2 or TL and use their HL as mediational means for language learning and task resolution (Storch, 2002). Considering the increasing numbers of individuals that live in multilingual realities today (Yağmur & Extra, 2011), further studies focusing on Arabic as a HL but also further heritage languages and considering different age groups could contribute to extending and corroborating these findings.

Finally, the present study demonstrates how the parallel theoretical lenses of translanguaging theory and sociocultural theory can not only provide evidence of language learning and development when learners engage in translanguaging-to-learn, but the translanguaging lens can provide further insights into SCT research, as discussed above in relation to how a translanguaging perspective can extend the conceptualization of 'collective expert'.

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## Appendix

*Parental questionnaire*
(parts of the questionnaire adapted from Anderson, Mak, Keyvani Chahi, & Bialystok, 2018; Marian, Blumenfeld, & Kaushanskaya, 2007)

YOUR CHILD'S LANGUAGES

1. Please name all the languages that your child can understand and/or speak and fill in your answers to the questions in the chart.

| Language | Where did your child learn this language? (At home, at school etc.) | How old was your child at the beginning of the contact with this language? | Was this language spoken predominantly in the environment? |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |

2.1. Please evaluate your child's language skills in their mother tongue in the different areas. Think about other children of similar age for a comparison.

Language 1:_____

| | | | | | |
|---|---|---|---|---|---|
| Speaking | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |
| Understanding | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |
| Reading | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |
| Writing | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |

Please indicate how much time your child has spent in the following language environments:
(in years and months)

a) In the country, in which this language is spoken: _____
country:_____
___

b) In a family, in which this language is spoken:_____
c) In a kindergarten/school, in which this language is spoken:_____

2.2. When two or more languages are spoken at home: Please evaluate your child's language skills in the other languages in the different areas. Think about other children of similar age for a comparison.

Language 2:_____

| | | | | | |
|---|---|---|---|---|---|
| Speaking | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |
| Understanding | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |
| Reading | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |
| Writing | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |

Please indicate how much time your child has spent in the following language environments:
(in years and months)

a) In the country, in which this language is spoken: _____
country:_____
___
b) In a family, in which this language is spoken:_____
c) In a kindergarten/school, in which this language is spoken:_____

Language 3:_____

| | | | | | |
|---|---|---|---|---|---|
| Speaking | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |
| Understanding | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |
| Reading | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |
| Writing | ☐ none | ☐ low | ☐ middle | ☐ good | ☐ very good |

Please indicate how much time your child has spent in the following language environments:
(in years and months)

d) In the country, in which this language is spoken: _____
country:_____
___
e) In a family, in which this language is spoken:_____
f) In a kindergarten/school, in which this language is spoken:_____

3. Was your child born in Germany? Yes ☐ No ☐
When the answer is NO, please answer the following questions:

a) Where was your child born? _____
b) When did your child arrive in Germany?_____(year, month)

LANGUAGE USE

4. Please name the parents or the caregivers (also in the day care or the grandparents) for the first two years of your child's life. Estimate how much time each parent or caregiver spent with the child during an ordinary week approximately. A whole week amounts to 100% of the time.

| Caregiver | Time per week (e.g. 30% of the week) | Language(s) spoken with the child |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |

4.1. Please give further details on the two main caregivers:
Parent 1 or Caregiver 1 (see above): _____
a) Mother tongue:_____
b) Further languages:_____
c) Country of birth: _____
d) Current place of residence: _____
e) Profession: _____
f) Highest educational level achieved: _____

4.2. Parent 2 or Caregiver 2 (see above): _____
a) Mother tongue:_____
b) Further languages:_____
c) Country of birth: _____
d) Current place of residence: _____

e) Profession: _____
f) Highest educational level achieved: _____

4.3. Which languages do the parents/caregivers speak with each other predominantly?

_____
_

5. Please tick the boxes for the languages that your child heard or spoke most often in each **stage of life** at home and outside of home.

Language 1: _____
Language 2[5]: _____

| | Only langua-ge 1 | Mainly langua-ge 1 | Half language 1, half language 2 | Mainly langua-ge 2 | Only language 2 |
|---|---|---|---|---|---|
| Early childhood (Age: 0-3 years) | ☐ | ☐ | ☐ | ☐ | ☐ |
| Kindergarten age (Age: 3-6 years) | ☐ | ☐ | ☐ | ☐ | ☐ |
| Primary school age (Age: from 6 years onwards) | ☐ | ☐ | ☐ | ☐ | ☐ |

6. Please tick the boxes for the languages that your child normally uses with **each person**. Use the numbers that you gave each language in the previous question.

| | Only langua-ge 1 | Mainly language 1 | Half language 1, half language 2 | Mainly langua-ge 2 | Only language 2 |
|---|---|---|---|---|---|
| Mother | ☐ | ☐ | ☐ | ☐ | ☐ |
| Father | ☐ | ☐ | ☐ | ☐ | ☐ |
| Siblings | ☐ | ☐ | ☐ | ☐ | ☐ |
| Grandparents | ☐ | ☐ | ☐ | ☐ | ☐ |
| Caregivers | ☐ | ☐ | ☐ | ☐ | ☐ |

[5] Attention: If your child spoke a third language in their everyday life, write the language on the line under Language 2 for each of the life stages. In the next question you can follow the same procedure.

| | | | | | |
|---|---|---|---|---|---|
| Friends | ☐ | ☐ | ☐ | ☐ | ☐ |
| Neighbors | ☐ | ☐ | ☐ | ☐ | ☐ |

7. Please tick the boxes for the languages that your child normally uses in each **context**. Use the numbers that you gave each language in question 5.

| | Only language 1 | Mainly language 1 | Half language 1, half language 2 | Mainly language 2 | Only language 2 |
|---|---|---|---|---|---|
| Home | ☐ | ☐ | ☐ | ☐ | ☐ |
| School | ☐ | ☐ | ☐ | ☐ | ☐ |
| Free-time activities (e.g. hobbies, sports etc.) | ☐ | ☐ | ☐ | ☐ | ☐ |
| Audiovisual Media (e.g TV, cinema, radio, internet music, whatsapp etc.) | ☐ | ☐ | ☐ | ☐ | ☐ |
| Printed Media (e.g. children's books etc.) | ☐ | ☐ | ☐ | ☐ | ☐ |

8. Sometimes people mix languages in one conversation (i.e. sometimes words or sentences from a second language is used). Indicate how often your child uses this kind of language mix with each person.

| | Never | Rarely | Sometimes | Often | Always |
|---|---|---|---|---|---|
| With the mother | ☐ | ☐ | ☐ | ☐ | ☐ |
| With the fater | ☐ | ☐ | ☐ | ☐ | ☐ |
| With siblings | ☐ | ☐ | ☐ | ☐ | ☐ |
| With grandparents | ☐ | ☐ | ☐ | ☐ | ☐ |
| With friends | ☐ | ☐ | ☐ | ☐ | ☐ |

**Thank you for taking the time to answer the questions!**

*Transcription symbols as per CHAT/CHILDES*
(MacWhinney, 2000; 2019)

? Rising Intonation at the end of a word, phrase, or clause
. Falling Intonation at the end of a word, phrase, or clause
+/. Interruption
+. Overlap

+… Trailing off
# Pauses
[=! text] Paralinguistic material
xxx Incomprehensible item
%com: Used below the utterance to comment on any non-verbal behavior by the speakers
Exclamations or interjections: Use one form consistently, as listed on the website:
https://en.wiktionary.org/wiki/Category:German_interjections

**Arabic transcription**

Arabic is transcribed with Latin alphabet, as a phonemic transcription.

When transcribing geminates, use double consonants or double vowels, as in the table underneath:

Vowels

| IPA | Arabic | Name | CHAT |
|---|---|---|---|
| iː | يـ | ya | ii |
| ɪ, i | ـِ | kasra | i |
| eː | ي | ya (ba'den) | ee |
| e | | - | e |
| aː | ا | alef madda emphatic | aa |
| a, ɑ | ا | short a | a |
| æ | ـَ | fatHa | ae |
| æː | | alef madda non-emphatic | æː |
| uː | و | waw, long | uu |
| u | و | waw, short | |
| ʊ | ـُ | dame | u |

| | | | |
|---|---|---|---|
| oː | و | waw (bantaloːn) | oo |
| o, ɔ | و | short | o |
| ə | | not in Arabic | ẹ |

Consonants

| IPA | Arabic | Name | CHAT |
|---|---|---|---|
| ʔ | إ | hamza | ʔ |
| b | ب | ba | b |
| p | | | p |
| t | ت | ta | t |
| θ | ث | tha | tʰ |
| ʒ | ڃ | jim | j |
| ħ | ح | ḥa | ḥ |
| x | خ | xa | kʰ |
| χ | | | qʰ |
| d | د | dal | d |
| ð | ذ | dhal | dʰ |
| r | ر | ra | r |
| z | ز | zen | z |
| s | س | sin | s |
| ʃ | ش | shin | sʰ |
| sˤ | ص | sad | ṣ |
| dˤ | ض | dad | ḍ |
| tˤ | ط | ṭa | ṭ |
| zˤ | ظ | ẓa | ẓ |
| ʕ | ع | ʻayn | ʕ |
| ɣ | غ | ghayn | gʰ |
| f | ف | fa | f |
| q | ق | qaf | q |
| g | ج | gim | g |
| k | ك | kaf | k |

| | | | |
|---|---|---|---|
| l | ل | lam | l |
| m | م | mim | m |
| n | ن | nun | n |
| h | ه | ha | h |
| w | و | waw | w |
| j | ي | ya | y |
| ʧ | | | $ts^h$ |
| ʤ | | | dj |
| v | | | v |

(MacWhinney, 2019, pp. 98-100)